

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

Translation

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

<p>To:</p>		<p>Date of mailing (day/month/year)</p>
<p>Applicant's or agent's file reference HMI2003/0401</p>		<p>FOR FURTHER ACTION See paragraph 2 below</p>
<p>International application No. PCT/DE2004/000748</p>	<p>International filing date (day/month/year) 07.04.2004</p>	<p>Priority date (day/month/year) 15.04.2003</p>
<p>International Patent Classification (IPC) or both national classification and IPC C23C16/44, C23C16/04</p>		
<p>Applicant HAHN-MEITNER-INSTITUT BERLIN GMBH</p>		

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input checked="" type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

<p>Name and mailing address of the ISA/EP</p>	<p>Authorized officer</p>
<p>Facsimile No.</p>	<p>Telephone No.</p>

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Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. II

Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date in the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-5	YES
	Claims	7-10	NO
Inventive step (IS)	Claims	6	YES
	Claims	1-5, 7-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO
2. Citations and explanations:			
<p>1 The present report makes reference to the following documents:</p> <p>D1: PATENT ABSTRACTS OF JAPAN, vol. 0181, no. 20 (E-1516), 25 February 1994 & JP 5 315645 A</p> <p>D2: US-A-5 789 766</p> <p>D3: MARCHI F ET AL: "Direct patterning of noble nanostructures with a scanning tunnelling microscope" JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B 18(3), May 2000 (2000-05), pages 1171-1176</p> <p>D4: WO 02/084729 A</p> <p>2 INDEPENDENT CLAIM 7</p> <p>2.1 The present application does not satisfy the requirements of PCT Article 33(1) because the subject matter of claim 7 is not novel within the meaning of PCT Article 33(2).</p> <p>Document D1 discloses a semiconductor element, characterized by a design as a light-absorbing or light-emitting LED and as an array thereof (D1: abstract PAJ, figures 1-6). Despite a different manufacturing process, the semiconductor element</p>			

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Reasoned statement under Rule 43bis1(a)(I) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

disclosed in D1 is said to exhibit the same properties.

- 2.2 The present application does not satisfy the requirements of PCT Article 33(1) because the subject matter of claim 7 is not novel within the meaning of PCT Article 33(2).

Document D2 discloses semiconductor elements, characterized by a design as a light-emitting LED and as an array thereof (D1: claims 1-7, figures 1-3).

3 INDEPENDENT CLAIM 1

- 3.1 The present application does not satisfy the requirements of PCT Article 33(1) because the subject matter of claim 1 is not based on an inventive step within the meaning of PCT Article 33(3).

- 3.1 Document D3 is considered to be the closest prior art in respect of the subject matter of claim 1. It discloses an electrochemical method for the direct nanostructured deposition of material onto a substrate, by depositing at least one material component from a pressure- and temperature-controlled atmosphere using a precursor gas containing at least one material component in a precursor compound, under the effect of a locally narrowly limited electric field which is built up in a voltage- and time-dependent manner between the movable electrically conductive probe tip of a contactlessly scanning microscope and the

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substrate, wherein the precursor compound is split above a predefined threshold voltage value and the released material component is deposited on the substrate in the region of the probe tip, characterized in that use is made of a precursor gas (D3: page 1171 column 2 line 8 - page 1175 column 2 line 12, figure 1, table 1).

- 3.2 The subject matter of claim 1 thus differs from that known from D1 in that, a number of precursor gases in a gas mixture are used for the electrochemical method for nanostructuring on a substrate.
- 3.3 The problem to be solved by the present invention can thus be considered to be that the chemical method permits the production of compound conductors under vacuum.
- 3.4 The solution proposed in claim 1 of the present application cannot be considered to be inventive for the following reasons (PCT Article 33(3)): the production of compound conductors by means of a chemical method under vacuum and using a number of precursor gases is already known (D4: page 5 line 11 - page 6 line 26 and claims 1, 2).
- 3.5 The person skilled in the art would therefore combine all the features disclosed in D3 and D4, without thereby being inventive, to solve the problem of interest. The solution proposed in the independent claim 1 therefore cannot be considered

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to be inventive (PCT Article 33(3)).

4 DEPENDENT CLAIMS 2-5, 8-10

Claims 2-5, 8-10 do not contain any features which, in combination with the features of any claim to which they refer back, satisfy the requirements of the PCT in respect of novelty and inventive step.